



Figure 3-4. Index Map of the Sacramento River Basin Including the Five Major Watersheds with Facilities of the State Plan of Flood Control

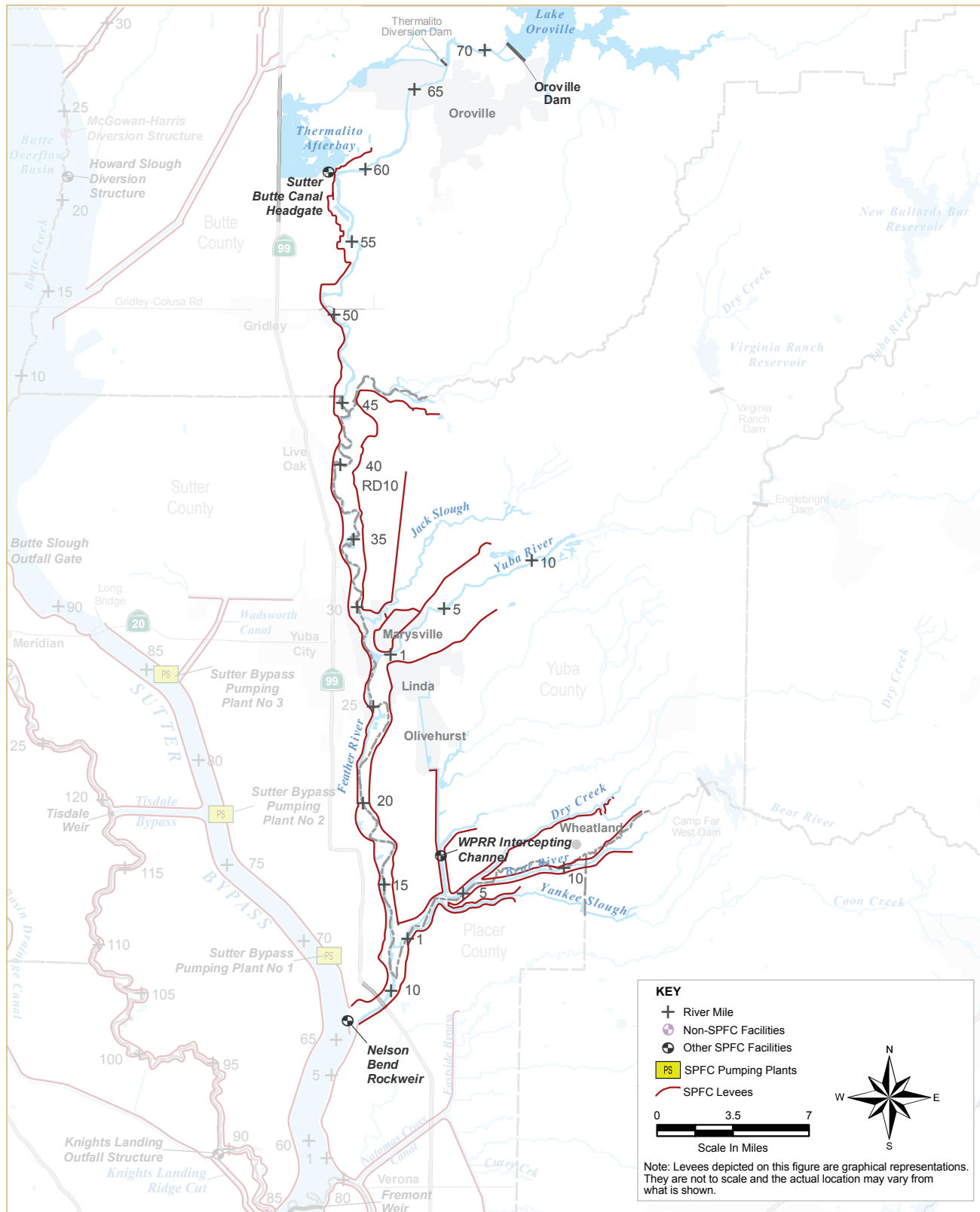


Figure 3-5. Feather River Watershed – State Plan of Flood Control Facilities Along the Feather, Yuba, and Bear Rivers and Tributaries

### *North Fork Feather River near Chester*

SPFC channel improvements and levees (see O&M Manual SAC508) are intended to reduce flood risk to the town of Chester, bridges for Highway 36, two county roads, and a railroad. The project (see Figure 3-1) consists of a diversion structure, an excavated rock-lined diversion channel, about 3 miles of levees along the channel (about 1.8 miles on the left bank and 1.2 miles on the right bank), and seven drop structures. At design flood flow (based on the O&M manual), an estimated 3,000 cfs would pass through the diversion structure to the North Fork Feather River and to Lake Almanor, and approximately 10,000 cfs would be conveyed by the diversion channel to Lake Almanor. The project is located upstream from Lake Oroville. Project O&M is performed by the Plumas County Department of Public Works.

### *Oroville Dam and Facilities*

Lake Oroville and related facilities are operated by DWR to provide multiple benefits, including flood management. With a total storage of 3.5 million acre-feet, the lake is operated with 750,000 acre-feet available for flood storage during the flood season. Since the State has provided assurances of nonfederal cooperation for flood management operation, Oroville Dam and facilities are included in the SPFC.



Oroville Dam is part of the SPFC

### *Feather River from Thermalito to Yuba River*

This reach of river has a design channel capacity of 210,000 cfs at 3 feet of freeboard based on O&M manuals identified below. SPFC facilities include right- and left-bank levees along the Feather River, the Sutter-Butte Canal Headgate, a levee on the left bank of Honcut Creek, a back levee for Reclamation District (RD) 10, and a ring levee around Marysville. The levees were originally built by local interests and enlarged or improved by USACE as project levees.

- The Feather River right-bank levee (see O&M Manuals SAC144, SAC152, and SAC154), about 28 miles long, is intended to reduce flood risk to adjacent agricultural lands and the towns of Biggs, Gridley, Live Oak, and Yuba City. Maintenance is provided by DWR through Maintenance Areas 7 and 16, and Levee Districts 1 and 9.
- The Feather River left-bank levee (see O&M Manual SAC151), extending about 11.2 miles from Honcut Creek to Jack Slough just north of Marysville, is intended to reduce flood risk for RD 10. Maintenance is provided by RD 10.
- The Sutter-Butte Canal Headgate (O&M Manual SAC160) controls release of river water to the irrigation canal. The Sutter-Butte Canal now receives water from the Thermalito Afterbay – no supplement to O&M Manual SAC160 has been found to document this change. The structure is operated and maintained by DWR through Sutter Maintenance Yard.
- A left-bank levee (see O&M Manual SAC151) along Honcut Creek extends about 4.5 miles from high ground to the confluence with the Feather River. The Honcut Creek design channel capacity is 5,000 cfs, based on the O&M manual. This differs from the design capacity of 25,000 cfs in the 1957 Revised Profile Drawings (USACE, 1957a). The levee is maintained by RD 10.
- The back levee (see O&M Manual SAC151) for RD 10 extends about 8 miles along Jack Slough and Simmerly Slough. The levee is intended to reduce flood risk from waters from the east. The levee is maintained by RD 10. Together, the Honcut Creek levee, the left-bank levee along the Feather River, and the back levee nearly surround RD 10.
- The ring levee (see O&M Manual SAC147) around Marysville is about 7.2 miles long. The levee is intended to reduce flood risk to Marysville from





The ring levee protects Marysville during the flood of 1955 (photo courtesy of California Disaster Office, 1956)

the Feather River, the Yuba River, and Jack and Simmerly sloughs. The levee is maintained by the Marysville Levee Commission.

### *Yuba River*

The channel capacity of the Yuba River upstream from its confluence with the Feather River is 120,000 cfs based on O&M manuals. SPFC facilities include right- and left-bank levees. The right-bank levee (see O&M Manual SAC147) extends about 4 miles upstream from the Marysville ring levee (see description above). The levee is maintained by the Marysville Levee Commission. Note that the water control manual for the upstream New Bullards Bar Dam specifies a maximum release of 180,000 cfs for the Yuba River.

The left-bank levee (see O&M Manuals SAC145 and SAC149) extends about 6.1 miles from high ground to the confluence connection with the Feather River levees. The levee is maintained by RD 784, and is intended to reduce flood risk to Linda and Olivehurst and adjoining agricultural land. The left-bank levee was originally built by local interests and enlarged or improved to project standards by USACE as a project levee.

### *Feather River from Yuba River to Bear River*

The design channel capacity of the Feather River in this reach is 300,000 cfs with 3 feet of freeboard, based on O&M manuals. SPFC facilities include right- and left-bank levees. The right-bank levee (see O&M Manual SAC144), about 14 miles long, reduces flood risk to Yuba City and adjoining agricultural land. The right-bank levee is maintained by Levee District 1. The left-bank levee (see O&M Manual SAC145) is about 13 miles long. The levee is maintained by RD 784 and reduces flood risk to Linda and Olivehurst and adjoining agricultural land.

### *Bear River*

SPFC facilities in the Bear River watershed include levees along Dry Creek, the Bear River, Yankee Slough, and the Western Pacific Railroad (WPRR) Intercepting Channel. Originally built by local interests, these levees were later repaired or enlarged to project standards by USACE.

- Dry Creek has a design channel capacity of 7,000 cfs based on O&M manuals. This differs from



SPFC facilities include right-and-left bank levees on the Yuba River

the design capacity of 9,000 cfs estimated in the 1957 Revised Profile Drawings (USACE, 1957a). The 1.5-mile-long right-bank levee (see O&M Manual SAC145) extends from high ground to the confluence with the Bear River. The levee is maintained by RD 784 and RD 817. The left-bank levee (see O&M Manual SAC146) extends about 8.5 miles from high ground to the confluence with the Bear River. The levee reduces flood risk to Wheatland and adjoining agricultural land. The left-bank levee is maintained by RD 817 and RD 2103.

- Upstream from its confluence with Dry Creek, the Bear River design channel capacity is 30,000 cfs, based on the O&M manual. The right-bank levee extends about 8.9 miles from high ground to the confluence. The levee is maintained by RD 817 and RD 1001 and is intended to reduce flood risk to Wheatland and adjoining agricultural land. The left-bank levee (see O&M manual SAC141.1) extends about 7.5 miles from high ground to the confluence with Dry Creek.
- Yankee Slough has a design channel capacity of 2,500 cfs based on the O&M manual. Left- and right-bank levees (see O&M Manual SAC141.1) each extend about 4 miles from high ground to the confluence with the Bear River. Both levees along Yankee Slough are maintained by RD 1001.
- The design capacity of the WPRR Intercepting Channel is 10,000 cfs, based on the O&M manual. The right-bank levee, about 6.3 miles in length, extends from high ground and serves as a back levee for RD 784. Levee improvements by the Three Rivers Levee Improvement Authority (TRLIA) are included in an addendum to the O&M manual. The left-bank levee, about 4.2 miles in length, is intended to reduce flood risk to RD 784. The levees are maintained by RD 784.
- Downstream from the Dry Creek confluence, the right-bank levee (see O&M Manual SAC145) of the Bear River extends about 4.7 miles to its connection with the Feather River levee. The right-bank levee is maintained by RD 784. The WPRR Intercepting Channel enters the Bear River from the north along this reach. Downstream from the WPRR Intercepting Channel, the Bear River has a design capacity of 40,000 cfs with 3 feet of freeboard, based on O&M manuals. Downstream from the Dry Creek confluence, the left-bank levee (see O&M Manuals SAC141.1 and

SAC141.2) of the Bear River extends about 5 miles to its connection with the Feather River levee. Yankee Slough enters along the left side of this reach. The left-bank levee is maintained by RD 1001.

#### *Feather River from Bear River to Sutter Bypass*

The design channel capacity of the Feather River in this reach is 320,000 cfs with 3 feet of freeboard based on O&M manuals. SPFC facilities include right- and left-bank levees and a rock weir at Nelson Bend.

The right-bank levee (see O&M Manual SAC143) is 5.2 miles in length. Maintenance is provided by Levee District 1 and DWR through Maintenance Area 3. The left-bank levee (see O&M Manuals SAC141.1 and SAC141.2) is about 5 miles long and is maintained by RD 1001. Originally built by local interests, these levees were later enlarged or improved to project standards by USACE.

The rock weir (see O&M Manual SAC501) was constructed in 1970 and 1971 to control flow where the Feather River meets the Sutter Bypass. The improvements of the Nelson Bend Modification Project provide protection against the formation of Feather River overflow channels into the Sutter Bypass, and act to retard deposition of sediments in the Sutter Bypass during flood flows.

#### *Joint Feather River/Sutter Bypass Channel to the Sacramento River*

From their junction, the Feather River and Sutter Bypass flow in a joint channel to the Sacramento River (see Figure 3-7). The design channel capacity of this reach is 416,500 cfs with 6 feet of freeboard, based on O&M manuals. SPFC facilities include right- and left-bank levees about 1.3 miles apart. The right-bank levee (see O&M Manual SAC129), about 10 miles long, is intended to reduce flood risk to agricultural land in RD 1500. The levee is maintained by RD 1500. The left-bank levee (see O&M Manual SAC141.1), about 7 miles long, is intended to reduce flood risk to agricultural land in RD 1001. The levee is maintained by RD 1001. The left-bank levee was originally built by local interests and later enlarged or improved to project standards by USACE.

### 3.2.2 American River Watershed

The American River enters the Sacramento River at the City of Sacramento. Figure 3-6 includes SPFC facilities in the American River watershed.

#### *American River from Carmichael Bluffs to Natomas East Main Drainage Canal*

The design capacity of this reach is 115,000 cfs with 5 feet of freeboard and 152,000 cfs with 3 feet of freeboard, based on O&M manuals. SPFC facilities along this reach include right- and left-bank levees, two pumping plants, and vegetation on mitigation sites. The levees and pumping plants is intended to reduce flood risk to urban areas in Sacramento County. Portions of the levees were originally built by local interests, and portions of these levees were enlarged to project standards by USACE.

The right-bank levee (see O&M Manuals SAC118.2 and SAC517) extends about 12 miles from high ground to the Natomas East Main Drainage Canal. The levee is maintained by American River Flood Control District and DWR through Maintenance Areas 10 and 11. Two SPFC pumping plants (see O&M Manual SAC518) are located along the American River and are operated by Sacramento County. Pumping Plant No. 1 is located about 1 mile downstream from the H Street Bridge; Pumping Plant No. 2 is located about 0.25 miles east of the Watt Avenue Bridge. The pumping plants dispose of local drainage water from about 15.5 square miles of the area located behind the levee. Five vegetation mitigation sites (see O&M Manual SAC517.3) are located between the Watt Avenue and Howe Avenue bridges.

Based on the O&M manual, the left-bank levee (see O&M Manual SAC118.1) begins at Mayhew Road, about 3.5 miles downstream from the right-bank levee and extends about 10 miles from high ground to the Natomas East Main Drainage Canal. The levee has been extended by USACE upstream from Mayhew. Four vegetation mitigation sites (see O&M Manual SAC118.1A) are located along this reach of levee. The levee is maintained by the American River Flood Control District, and DWR maintains the channel.



The American River right-bank levee extends from high ground near Carmichael Bluffs



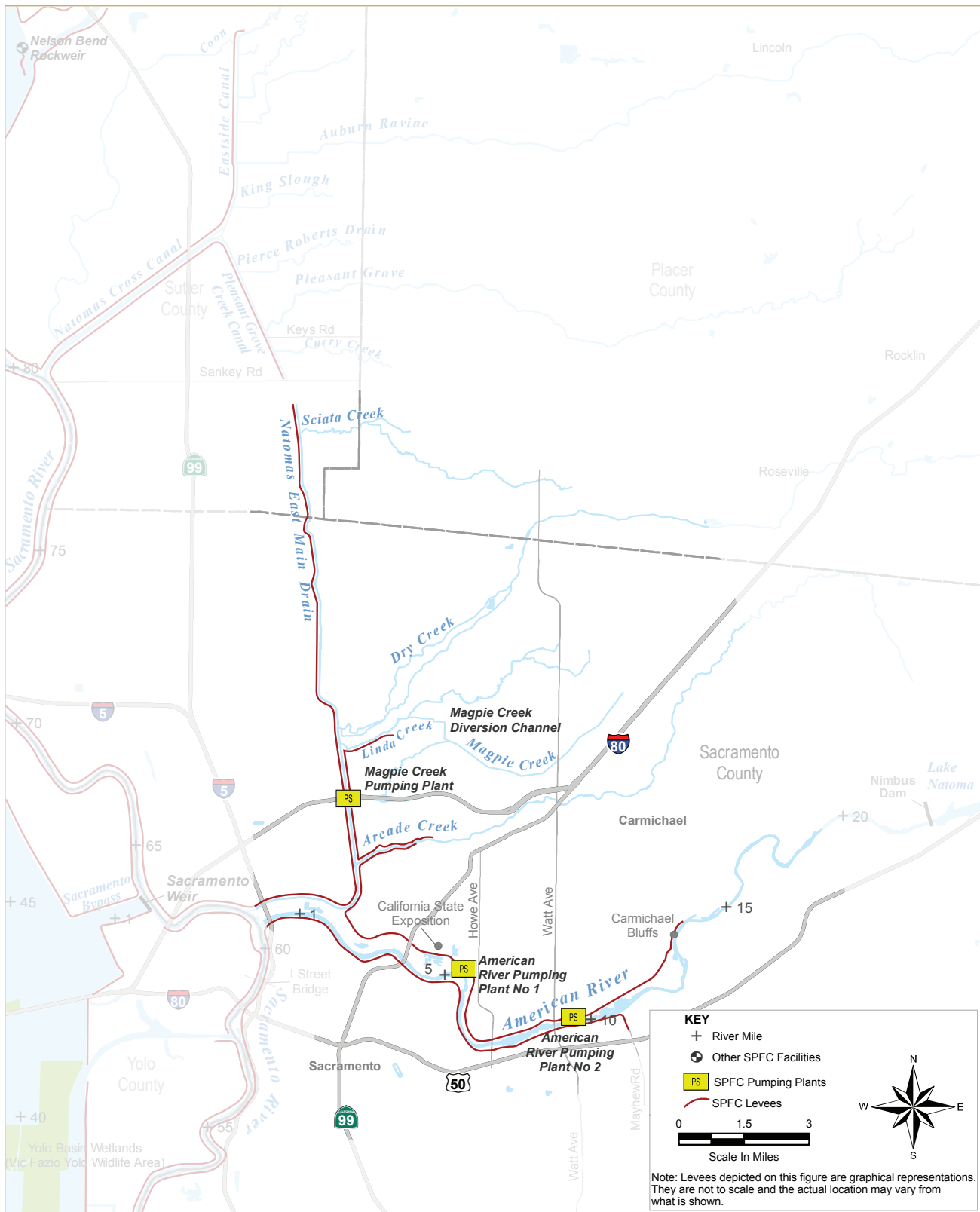


Figure 3-6. American River Watershed – State Plan of Flood Control Facilities Along the American River, Natomas East Main Drainage Canal, and Tributaries

### *Natomas East Main Drainage Canal*

The Natomas East Main Drainage Canal was designed to intercept streams approaching RD 1000 from the east and discharge them into the American River. SPFC facilities are levees and improved channels for the Natomas East Main Drainage Canal and tributaries. With the exception of the left-bank levee along Dry Creek (formerly Linda Creek), right-bank levee along Arcade Creek, and left-bank levee of the Natomas East Main Drainage Canal between Arcade and Dry Creek constructed by USACE, the levees were originally constructed by local interests and rebuilt by USACE to project standards. The levees are maintained by the American River Flood Control District.

- RD 1000 is entirely surrounded by levees. In the vicinity of Sankey Road on the east side of RD 1000, flow along the levee is southerly into the Natomas East Main Drainage Canal and northerly into the Pleasant Grove Creek Canal (see description under Section 3.2.5). For the reach of the Natomas East Main Drainage Canal from Sankey Road to the Dry Creek north levee, there is a right-bank levee (see O&M Manual SAC125) but no left-bank levee. The design flood capacity of this 9-mile reach of the Natomas East Main Drainage Canal is about 1,500 cfs, based on the O&M manual.
- Dry Creek enters the Natomas East Main Drainage Canal about 4 miles upstream from the American River. A left-bank levee (see O&M Manual SAC118.2) extends about 1.3 miles along Dry Creek. The right-bank levee and floodwall of Dry Creek has been constructed as part of the Sacramento Area Flood Control Agency (SAFCA) and USACE authorized project, but is not yet turned over to the Board and documented in the O&M manual. The design capacity of Dry Creek upstream from the Natomas East Main Drainage Canal is 15,000 cfs, based on the O&M manual. A 1.4 mile-long diversion channel from Magpie Creek to Dry Creek is intended to limit flood flows in the lower reaches of Magpie Creek. The Magpie Creek diversion channel has a design capacity of 250 cfs.
- From Arcade Creek to the American River, the Natomas East Main Drainage Canal has a capacity of 16,000 cfs, based on the O&M manuals. This reach of the Natomas East Main Drainage

Canal has a right-bank levee (see O&M Manual SAC125) and a left-bank levee (see O&M Manual SAC118.2), each about 4 miles long. Along this reach, Arcade Creek enters from the east. The design capacity of Arcade Creek upstream from the Natomas East Main Drainage Canal is 3,300 cfs. Right- and left-bank levees (see O&M Manual SAC118.2) each extend along Arcade Creek about 2 miles from high ground to the Natomas East Main Drainage Canal.

### *American River from Natomas East Main Drainage Canal to Sacramento River*

This reach of river has a design capacity of 180,000 cfs with 3 feet of freeboard, based on the O&M manuals. SPFC facilities include levees along both banks of the river. The right-bank levee (see O&M Manual SAC124) is about 2.2 miles long. The right-bank levee was originally built by local interests and accepted into the project without modification because it equaled or exceeded USACE standards. The right-bank levee is maintained by RD 1000. A vegetation mitigation site (see O&M Manual SAC124.2) is located about 0.9 miles upstream from the Sacramento River. The left-bank levee (see O&M Manual SAC118.1) is about 2.5 miles in length. The left-bank levee was originally constructed by local interests and rebuilt by USACE to project standards. The levee is intended to reduce flood risk for areas in Sacramento County.

### **3.2.3 Sutter Bypass Watershed**

The Sutter Bypass receives water from natural runoff areas south of Chico, overflow and weir flow from the Sacramento River, and drainage from the east side of the bypass through the Wadsworth Canal and pumping plants. The bypass joins the Feather River upstream from its confluence with the Sacramento River near the Fremont Weir. Figure 3-7 shows SPFC facilities in the Sutter Bypass watershed.



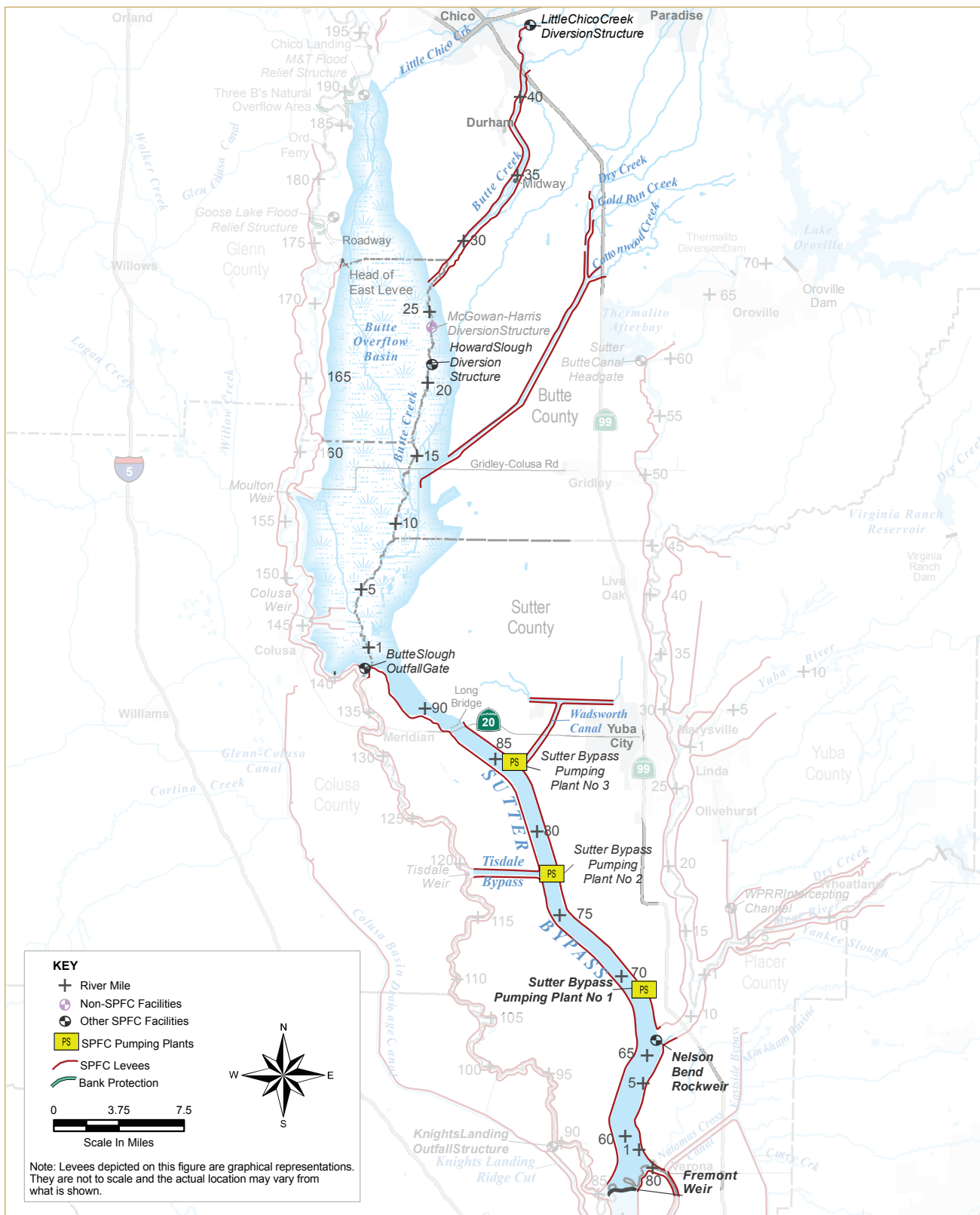


Figure 3-7. Sutter Bypass Watershed – State Plan of Flood Control Facilities Along Butte Creek, Cherokee Canal, Sutter Bypass, and Tributaries